Electronic Version
Stylesheet Version v1.1.1

Claims

[c1] A pressure driven fluid pump and integrated pressure driven power supply dependent on pressure derived from the phase change of state of a preselected phase change material.

[c2] A method for providing an energy reservoir of compressed fluid on demand by activating a phase change in a phase change material positioned in a constant volume container.

[c3] A method for harnessing the energy in compressed fluid to do usable work, comprising the steps of:
providing an energy reservoir of compressed fluid on demand by activating a phase change in a phase change material positioned in a constant volume container; and
connecting a pressure-driven load in fluid communication with said energy reservoir of compressed fluid.

[c4] The method of claim 3, wherein the pressure-driven load is a turbine adapted to generate electrical power.

[c5] The method of claim 3, wherein the pressure-driven load is a pump.

[c6] The method of claim 3, wherein the pressure-driven load is a piezo-chamber adapted to generate electrical power.

[c7] The method of claim 3, further comprising the step of positioning said pressure-driven load between said energy reservoir of compressed fluid and a high pressure storage tank where said energy reservoir of compressed fluid is in fluid communication with an input of said pressure driven load and said high pressure storage tank is in fluid communication with an output of said pressure-driven load.

[c8] The method of claim 7, further comprising the step of positioning a pneumatic circuit in fluid communication between said energy reservoir of compressed fluid and said high pressure storage tank.

[c9] The method of claim 8, further comprising the step of connecting a mechanical load to an output of said pneumatic circuit.

[c10] The method of claim 8, further comprising the step of connecting a fluidic load to an output of said pneumatic circuit.

[c11] The method of claim 7, further comprising the step of positioning a hydraulic circuit in fluid communication between said energy reservoir of compressed fluid and a

high pressure storage tank.

[c12] The method of claim 11, further comprising the step of connecting a mechanical load to an output of said hydraulic circuit.

[c13] The method of claim 11, further comprising the step of connecting a fluidic load to an output of said hydraulic circuit.

[c14] A microbattery, comprising:
a plurality of layers of elements that interact with one another to produce an electrical current;
a plurality of propellant members, each of which is formed of a phase-change material;
an initiator means;
a plurality of conductors, each conductor of said plurality of conductors providing electrical communication between a preselected propellant member of said plurality of propellant members and said initiator means;
a pressure cell defining a closed volume for housing said plurality of propellant members;
a fluidic oscillator mounted on said pressure cell;
a flexible diaphragm mounted to said fluidic oscillator, said flexible diaphragm adapted to oscillate as said fluid oscillator alternately directs fluid to opposite sides of said flexible diaphragm;

a magnetic core mounted to said flexible diaphragm;
a cap layer mounted in surmounting relation to said flexible diaphragm;
a coil mounted to said cap layer, said coil adapted to receive said magnetic core;
whereby a preselected propellant is activated by said initiator means;
whereby explosion of said preselected propellant increases pressure within said pressure cell;
whereby said pressure is harnessed to drive said fluidic oscillator (is that right?);
whereby said fluidic oscillator causes flow of a preselected fluid to alternately flow to opposite sides of said flexible diaphragm so that said flexible diaphragm oscillates and thereby causes back-and-forth motion of said magnetic core relative to said coil;
whereby alternating current is produced by the relative motion between said magnetic core and said coil.